The enriched portion enters outlet tube 3 and passes radially outwards along the tube to the tube portion positioned in the groove 25 and along the periphery of the groove and then finally radially inwards to the storage bag 4. The storage bag 4 is initially collapsed, *i.e.*, without any considerable amount of air or gas inside it. When a predetermined amount of fluid has been pumped into the space 17 under the membrane 15, the separation process is terminated and the centrifuge is stopped and the storage bag is separated from the processing bag. The storage bag is closed and stored for subsequent use while the remaining bag and tubes are discarded.

The outlet tube 3 acts as a cell filter, since the heavier cells, such as red and white blood cells, under the influence of the G-field, tend to accumulate and attach to the outer surface of the tube and do not follow the fluid flow, bringing with it only the platelets. Thus, the outlet tube 3 forms a cell trap eliminating the need for using a separate cell filter as in the prior art. It is the positioning of the outlet tube 3 at a high G-field that makes it possible to use it as a cell trap.

The cell trapping ability can be improved by adding an enlargement at a suitable position along the outlet tube. Three different embodiments of such enlargements 7,8 and 9 are shown in Fig. 1 and are intended to be incorporated in the outlet tube 3 as indicated.

Such an enlargement can be arranged where the radial flow in the beginning of outlet tube is linked into a peripheral flow when tube 3 enters the groove 25. Another convenient position is when the outlet tube exits the groove 25 and extends radially inwards. Of course, several cell trap enlargements can be arranged along the outlet tube.

In Fig. 3 there is shown another embodiment of the centrifuge and the bag assembly according to the invention. In this embodiment, a central portion of the ring bag is used as the platelet storage bag. The bag assembly is arranged with an insert 30 already at the manufacturing step. The insert 30 has a shape which closely follows the interior of the closure portion 20. Thus, the insert and the bag assembly can be placed in the rotor and the closure portion can be attached, and the centrifuge is ready for operation.

The insert 30 has the same configuration as the insert in the prior art patent specification WO 95/01842 mentioned above. The insert 30 has a generally cup-shaped central portion 31 and a ring-shaped outer portion 32. The ring-shaped outer portion 32 comprises a peripheral groove 33 similar to groove 25 and enclosing the outlet tube 34.

This embodiment of the bag assembly is preferably filled with buffy coat before being placed in the centrifuge. Such filling takes place via an inlet tube 35, which is then closed and sealed.

The outlet tube 34 passes a magnetic valve 36, which closes and opens the outlet tube 34 at initiation of the filling step and ends in a storage bag 37.

The operation of the embodiment shown in Fig. 3 is similar to the operation of the embodiment shown in Fig. 2 and need not be further described. The use of an insert for maintaining the bag assembly in a specific position makes it easier to operate the bag assembly and makes it more safe. Fig. 4 shows the insert 30 from below provided with the storage bag 37 in the central cup-shaped portion and the outlet tube 34 placed in a peripheral groove. For clarity, the annular processing bag is removed.

The outlet tube 34 has a first radial portion 38 extending radially outwards to the periphery. Then, the outlet tube 34 includes a central peripheral portion 39 extending almost one revolution along the periphery. Finally, the outlet tube 34 is terminated by a radial portion 40 extending inwards from the periphery and to the valve member 36 positioned centrally in the insert, and then to the inlet of the storage bag 37.

As clearly shown in Fig. 4, the outlet tube 34 comprises one or several enlargements or cell traps 41, 42, 43.

A first type of chamber or cell trap 41 is shown between the first radial portion 38 and the peripheral portion 39. The cell trap extends radially and has a side connection to the peripheral

portion 39. The heavier cells having a flow speed in the radial direction continue straight ahead into the cell trap vessel, while the light-weight fraction is deviated to the peripheral portion 39.

A second type of chamber or cell trap 42 is shown at the middle of the peripheral portion 39 but can be placed anywhere along the length of the outlet tube. The cell trap 42 is in principle an enlargement of the tube, where the heavier cells can be maintained. The flow speed in the enlargement is slower which means that the heavier cells will be forced outwards by the G-field and maintained in the cell trap. The cell trap can include some material having an affinity towards erythrocytes and leukocytes. The material is attached to the wall of the cell trap so that such cells are maintained in the cell trap when forced towards the wall having such material.

A third type of chamber or cell trap 43 is shown at the end close to the radial portion 40. Cell trap 43 is in principle only an enlargement of cell trap 42, but has a shape and dimension suitable for maintaining such cells as desired. The space outside the flow path can be provided with some type of absorption material as described above.

In Fig. 4, the outlet tube 34 and the cell traps 41, 42, 43 are positioned at the same or close to the same radial distance as the outer edge of the processing bag.

By using one or several of the cell traps shown above, a specific cell filter can be avoided in relation to prior art. Such cell filters are expensive. Thus, the cell trap according to the present invention provides an economic advantage while maintaining a high separation capacity.

Another way of forming a cell trap is shown in more detail in Fig. 5. The round bag assembly 50 is divided in two portions by an annular weld 51 provided on the round bag as shown in Fig. 5. The first inner portion 52 is the processing bag proper where the separation takes place, and the outer portion 53 forms a cell trap according to the present invention.

The processing inner portion 52 is filled with buffy coat via an inlet tube 54 as described above. The inlet tube 54 is then closed, for example heat sealed.